

What is claimed is:

1. An air cleaner comprising a housing having first and second opposite ends and a sidewall between said first and second ends; said sidewall defining an access opening; said sidewall having a slide mount; an access cover removably positioned over the access opening; and a filter element operably installed and sealed in the housing; the filter element having first and second opposite flow faces; the filter element including media having a plurality of flutes; each of the flutes having an upstream portion adjacent to the first flow face and a downstream portion adjacent to the second flow face; selected ones of the flutes being open at the upstream portion and closed at the downstream portion; and selected ones of said flutes being closed at the upstream portion and open at the downstream portion; said housing being constructed and arranged to accept the filter element through the access opening in the sidewall and slide along the slide mount, the air cleaner characterized by:
  - (a) said sidewall defines a bump out region; the bump out region being a wedge-shaped area of volume defined by the sidewall expanding outwardly until reaching the slide mount;
    - (i) said housing being constructed and arranged to accept the filter element through the access opening in the sidewall, slide along the slide mount, and engage the bump out region.
2. An air cleaner according to claim 1 wherein:
  - (a) the bump out region is defined by a region of the sidewall starting at a midpoint of the side wall and expanding outwardly until reaching the slide mount.
3. An air cleaner according to claim 1 wherein:
  - (a) said slide mount includes a ramp extending from the opening toward a closed portion of the housing.
4. An air cleaner according to claim 3 wherein:
  - (a) the ramp has a slope of less than 30°.

5. An air cleaner according to claim 3 wherein:
  - (a) the ramp has a slope of  $2^{\circ}$  -  $10^{\circ}$ .
6. An air cleaner according to any one of claims 3-5 wherein:
  - (a) the ramp includes a slide surface and a relief region; the relief region being angled away from the slide surface.
7. An air cleaner according to any one of claims 1-6 wherein:
  - (a) the filter element includes a seal member and a frame construction; the frame construction having an extension projecting axially from the second flow face; the seal member being supported by the extension of the frame construction; the seal member forming a radial seal with the housing when the filter element is cammed into sealing engagement.
8. An air cleaner according to any one of claims 1-7 wherein:
  - (a) said filter element includes a band around a periphery of the first flow face; and
  - (b) the access cover includes a ledge engaging the band to support the filter element.
9. An air cleaner according to any one of claims 1-8 wherein:
  - (a) said side wall is curved in a shape that generally corresponds to the shape of the filter element.
10. An air cleaner according to any one of claims 1-8 wherein:
  - (a) said side wall is curved in a U-shape including a bight section forming a closed end and a mouth sufficiently large enough to accommodate accepting the filter element therethrough.
11. A method of servicing an air cleaner; the air cleaner including: a housing having first and second opposite ends and a sidewall between the first and second ends; the sidewall defining an access opening; an access cover

removably positioned over the access opening; and a filter element operably installed and sealed in the housing; the filter element having first and second opposite flow faces; the filter element including media having a plurality of flutes; each of the flutes having an upstream portion adjacent to the first flow face and a downstream portion adjacent to the second flow face; selected ones of the flutes being open at the upstream portion and closed at the downstream portion; and selected ones of the flutes being closed at the upstream portion and open at the downstream portion; the housing being constructed and arranged to accept the filter element through the access opening in the sidewall; the method comprising:

- (a) pushing the filter element against a pivot region in the housing to pivot the filter element about the pivot region and release a seal between the filter element and the housing.

12. A method according to claim 11 wherein:

- (a) said step of pushing the filter element against a pivot region in the housing to release a seal includes releasing a radial seal between the filter element and housing.

13. A method according to any one of claims 11 and 12 further including:

- (a) after said step of pushing, removing the filter element through an opening in a side of the housing, and moving a portion of the filter element into a bump out region in the sidewall.

14. A method according to claim 13 further including:

- (a) after said step of removing, providing a second filter element and installing the second filter element in the housing;
  - (i) the second filter element having first and second opposite flow faces; the second filter element including media having a plurality of flutes; each of the flutes having an upstream portion adjacent to the first flow face and a downstream portion adjacent to the second flow face; selected ones of the flutes being open at the upstream portion and closed at the downstream portion; and selected ones of said flutes being

closed at the upstream portion and open at the downstream portion.

15. A method according to claim 14 wherein:
  - (a) the housing includes a ramp; and
  - (b) said step of installing includes sliding a portion of the second filter element against the ramp.
16. A method according to claim 11 further including:
  - (a) before said step of pushing, removing the access cover from the housing to expose the access opening in the side of the housing.
17. A method according to claim 16 further including:
  - (a) after said step of installing, placing a cover over the opening in the housing.
18. A method of installing a filter element into an air cleaner; the air cleaner including: a housing having first and second opposite ends and a sidewall between the first and second ends; the sidewall defining an access opening; the sidewall defining a ramp; an access cover removably positioned over the access opening; the filter element including first and second opposite flow faces, media having a plurality of flutes; each of the flutes having an upstream portion adjacent to the first flow face and a downstream portion adjacent to the second flow face; selected ones of the flutes being open at the upstream portion and closed at the downstream portion; and selected ones of the flutes being closed at the upstream portion and open at the downstream portion; the filter element having a band around the periphery of the first flow face; the housing being constructed and arranged to accept the filter element through the access opening in the sidewall; the method comprising engaging the band against the ramp and sliding the filter element along the ramp; the method being characterized by:
  - (a) sliding the filter element with the band into a bump out region;
  - (b) contacting a seal member on the filter element against a pivot region on the housing; and

- (c) applying force to an exposed portion of the filter element and pivoting the element about the pivot region to move the seal member into sealing engagement with the housing.
- 19. A method according to claim 18 wherein:
  - (a) the step of sliding the filter element with the band into a bump out region includes sliding the filter element with the band until the band engages a corner of the housing.
- 20. A method according to any one of claims 18 and 19 wherein:
  - (a) the step of applying force and pivoting includes pivoting the element about the pivot region to form a radial seal with the housing.
- 21. A method according to any one of claims 18-20 wherein:
  - (a) the step of applying force and pivoting includes pivoting the element about the pivot region to move the filter element so that no portion of the filter element is projecting into the bump out region.
- 22. A method according to any one of claims 18-21 further comprising:
  - (a) after the step of applying force and pivoting, orienting the access cover over the filter element to engage a ledge on the cover with the band on the filter element.